File NR: G4-35643(A)
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DEPARTMENT OF ECOLOGY
State of Washington

State of Washington
REPORT OF EXAMINATION
FOR WATER RIGHT APPLICATION

PRIORITY DATE
August 8, 2013

WATER RIGHT NUMBER
G4-35643(A)

MAILING ADDRESS
S.C. AGGREGATE COMPANY, INC.
1572 ROBINSON CANYON RD.
ELLENSBURG, WA 98926

SITE ADDRESS (IF DIFFERENT)
VARIOUS

Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AC-FT/YR)
1,120*	GPM	98.08* (29.42 ac-ft/yr of Consumptive Use)

*Total withdrawals authorized under Groundwater Application Nos. G4-35643(A) and G4-35643(B) from all sources must not exceed the total quantity authorized for withdrawal listed above.

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AC-FT/YR)		PERIOD OF USE (mm/dd)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Domestic multiple, up to 350* residences, no irrigation.	1,120		GPM		98.08	01/01 - 12/31

*Total number of sources authorized under Groundwater Application Nos. G4-35643(A) and G4-35643(B) from all sources must not exceed the total quantity authorized for withdrawal listed above.

IRRIGATED ACRES		PUBLIC WATER SYSTEM INFORMATION	
ADDITIVE	NON-ADDITIVE	WATER SYSTEM ID	CONNECTIONS
0	0	N/A	N/A

Source Locations

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
KITTITAS	GROUNDWATER		39-UPPER YAKIMA

Up to a total of 350 wells in the alluvial aquifer and bedrock aquifer, within:
T. 17 N., R. 17 E.W.M. Portions of Sections 1 and 2.
T. 18 N., R. 17 E.W.M. Portions of Sections 13, 22-24, 27, 34-36; all of Sections 25-26.
T. 18 N., R. 18 E.W.M. Portions of Sections 18-19, 29, and 31; all of Section 30.
ALL IN KITTITAS COUNTY, WASHINGTON.

Place of Use (See Attached Map)

PARCELS (NOT LISTED FOR SERVICE AREAS)

N/A

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

Combined Place of Use for G4-35643(A) and G4-35643(B):

T. 17 N., R. 17 E.W.M. Portions of Sections 1 and 2.
T. 18 N., R. 17 E.W.M. Portions of Sections 13, 22-24, 27, 34-36; all of Sections 25-26.
T. 18 N., R. 18 E.W.M. Portions of Sections 18-19, 29, and 31; all of Section 30.
ALL IN KITTITAS COUNTY, WASHINGTON.

Proposed Works

The proposed works include a combined total of up to 350 wells for both (A) and (B) permits, using a combination of individual, Washington State Department of Health-defined Group A and/or Group B wells, to supply up to 1,120 gallons per minute (gpm) of water for up to 350 residences. Permits designated (A) and (B) in this permit are not equivalent or relational to Group A or Group B water systems defined by the Department of Health. The individual average use will be 250 gallons per residence per day for continuous, year-round domestic use. A mix of public water systems and individual or independent systems may be developed. No incidental lawn or garden irrigation use is authorized.

The place-of-use (POU) is owned by various private landowners. The applicant intends to obtain permits authorizing the use of public groundwater in the requested amounts. These uses will be mitigated by a portion of the 1884 Reecer Creek water right, providing water-budget-neutrality for the uses and within the areas authorized herein.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
December 31, 2015	December 31, 2032	December 31, 2035

In determining the development schedule, a reasonable time was considered and allowed under existing conditions to begin and to complete construction of the project. This included sufficient time for the applicant to collect water-use data and to put the water to full beneficial use, in consideration of the cost and magnitude of the project and the engineering and physical features typically encountered.

Measurement of Water Use

How often must water use be measured?	Weekly
How often must water use data be reported to Ecology?	Annually (Jan 31)
What volume should be reported?	Total Annual Volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)

Provisions

General Conditions

Each landowner will record with the Kittitas County Auditor a property covenant that restricts or prohibits trees or shrubs over a septic drain field on each of the authorized parcels within the described POU.

Each landowner will record with the Kittitas County Auditor an appropriate conveyance instrument under which the applicant obtains an interest in Trust Water Right No. S4-01724CTCLsb7. Consumptive use quantities (total withdrawal minus return flow) shall be fully offset by debit of an equal quantity of Trust Water Right No. S4-01724CTCLsb7.

Any valid priority calls against the source Trust Water Right No. S4-01724CTCLsb7, based on local limitations in water availability, will result in temporary reduction or curtailment of the use of water under the permit until the priority call for water ends, or until other mitigation is supplied.

You (applicant) will pay the combined sum of **$667.22**, which represents a proportionate amount of the payment due and owing to the United States Bureau of Reclamation (USBR) for storage and delivery of water under Paragraph 15(a) of the Water Storage and Exchange Contract No. 09XX101700, (Storage Contract) between the USBR and the state of Washington Department of Ecology (Ecology) dated January 29, 2009.[1] The consumptive use of 0.892 acre-feet from October 16 through October 31 is subject to the terms and conditions in the Storage Contract.

The applicant and each water user (mitigation credit purchaser) shall submit an "Assignment of Application or Permit to Appropriate or Store Water" form to the Department of Ecology, describing the specific interest of the mitigation credit purchaser in this permit.

Prior to assignment of any portion of this water to a third party, a forbearance agreement shall be entered into between Ecology and Hillis. The agreement will require that diversions from adjudicated Water Right S4-83956-J will be curtailed to maintain flow in Robinson Canyon if downstream water-right holders are impacted from new groundwater withdrawals allowed under this permit. That agreement will be prepared and enacted outside of this permit.

Wells, Well Logs, and Well Construction Standards
The subject wells are authorized for groundwater withdrawal from the **alluvial** aquifer (aquifer system of alluvial sediments, Thorp gravels, and the Ellensburg Formation), within the Yakima Valley Basin.

All wells constructed in the state shall meet the construction requirements of WAC 173-160 titled "Minimum Standards for the Construction and Maintenance of Wells" and RCW 18.104 titled "Water Well Construction." Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned. Installation and maintenance of an access port as described in WAC 173-160-291(3) is required for all new wells.

All wells shall be tagged with a Department of Ecology unique well identification number. If you (applicant) or the well user(s) have an existing well and it does not have a tag, please contact the well-drilling coordinator at the Central Regional Office. This tag shall remain attached to the well. If you submit water measuring reports, reference this tag number.

[1] "Long-Term Water Storage and Exchange Agreement between the U.S. Bureau of Reclamation and the State of Washington, Department of Ecology" (Contract No. 09XX101700).

New wells constructed under this authorization should observe a minimum 50-foot setback from property boundaries and other wells to minimize potential for well interference.

Measurements, Monitoring, Metering and Reporting

Each water user shall install and maintain an approved measuring device for each of their uses in accordance with the rule "Requirements for Measuring and Reporting Water Use," WAC 173-173.

Each water user (or group system) shall record water use **weekly**, maintain these records for a minimum of five years, and provide copies to Ecology when requested. The maximum individual (or group) rates of withdrawal and the annual individual (or group) total volume for each residence (or group) shall be submitted to the Department of Ecology by January 31st following each report calendar year.

Each water user (or group) shall, if possible, submit water use data via the Internet. To set up an Internet reporting account, contact the Central Regional Office. You may submit hard copies by contacting the Central Regional Office for forms to submit your water use data.

WAC 173-173 describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

Water Level Measurements

Static water levels **should** be measured and recorded monthly using a consistent methodology. Static water level is defined as the water level in a well when no pumping is occurring and the water level has recovered from previous pumping. Static water level data **should** include the following elements:

- Unique Well ID Number.
- Measurement date and time.
- Measurement method (air line, electric tape, pressure transducer, etc.) and accuracy.
- Description of the measuring point (top of casing, sounding tube, etc.) and distance above or below land surface to the nearest 0.1 foot.
- Land surface elevation at the well head to the nearest 1 foot.
- Water level below the measuring point to the nearest 0.1 foot.

Department of Health Requirements

Prior to any new construction or alterations of a public water supply system, the State Board of Health requires such system owners to obtain written approval from the Washington State Department of Health, Office of Drinking Water. Contact that office prior to beginning (or modifying) your project at:

DOH/Division of Environmental Health
16201 E. Indiana Avenue, Suite 1500
Spokane Valley, WA 99216
(509) 329-2100

Easement and Right-of-Way

The water source and/or water transmission facilities are not wholly located upon land owned by the applicant. Issuance of a water right authorization by this department does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between applicant and owner of that land.

Water Use Efficiency
Each water user (or group system) is required to maintain efficient water delivery systems and use of up-to-date water conservation practices consistent with RCW 90.03.005.

Proof of Appropriation
The water right holder (applicant) shall file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution systems have been constructed and the quantity of water required by the project has been put to full beneficial use. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

Schedule and Inspections
Department of Ecology personnel, upon presentation of proper credentials and at reasonable times, shall have access to the project location, and to inspect records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

Findings of Facts
Upon reviewing the investigator's report, I find all facts relevant and material to the subject application have been thoroughly investigated. Furthermore, I concur with the investigator that water is available from the sources in question, that there will be no impairment of existing rights, that the purpose of use is beneficial, and that there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. G4-35643(A), subject to existing rights and the provisions specified above.

Your Right To Appeal

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel RD SW Ste 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov.
To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser.

Signed at Yakima, Washington, this _____ day of _____ 2015 .

_____
Sage Park, Section Manager
Water Resources Program
Central Regional Office

INVESTIGATOR'S REPORT

Background

This report serves as the consolidated written findings of facts concerning Water Right Application Nos. G4-35643(A) and G4-35643(B).

Priority Processing

This application is being priority processed prior to competing applications because it is determined to be water budget neutral and thus qualifies under WAC 173-152-050(2)(g).

Summary of Requested Water Right

The original application, filed August 8, 2013, was for multiple group or individual wells to provide water for up to 1,200 domestic connections within the Kittitas Valley, as summarized in Table 1. The application for a new permit is accompanied by a commitment of 100.7 acre-feet (ac-ft) of water from the Reecer Creek Mitigation Bank. The requested permit would be used to provide permit coverage for customers of the Reecer Creek Golf Course Mitigation Bank who, in addition to mitigation for their consumptive use of water, also need a groundwater permit under RCW 90.44.050.

In addition to the basic consumptive use offset provided by the Reecer Creek Mitigation Bank, additional 'local' mitigation actions are proposed for Application Nos. G4-35643(A) and G4-35643(B) to address potential impairment to senior rights within the Robinson Canyon Creek Subbasin (west of the Yakima River). This agreement requires diversions from adjudicated water right S4-83956-J to be curtailed to maintain flow in Robinson Canyon if downstream water-right holders are impacted from new groundwater withdrawals allowed under this permit.

An independent supplemental mitigation agreement will be used to address potential impairment from the withdrawal of ground water associated with Application Nos. G4-35643(C) and G4-35643(D) within an area above the Cascade Irrigation District canal (east of the Yakima River) along the north side of the Kittitas Valley. The (C) and (D) portions of this application will be investigated in a separate report of examination once the mitigation approach is completed.

Table 1: Summary of Requested Water Rights in Original Application

Applicant	S.C. Aggregate Company, Inc.
Date	August 8, 2013
Place of Use	T. 16 N., R. 20E.W.M. Portions of Sections 3, 5-6, 8-10, 14-16, 22-23; all of Section 4 T. 17 N., R. 17E.W.M. Portions of Sections 2, 12; all of Section 1 T. 17 N., R. 18E.W.M. Portions of Sections 4-5, 8-9, 15-16, 22-23, 25-26; all of Sections 1-3, 10-14, 24 T. 17 N., R. 19E.W.M. Portions of Sections 21-23, 25-32, 36; all of Sections 1-20, 24 T. 17 N., R. 20E.W.M. Portions of Sections 2-3, 11, 14, 21-22, 28, 31, 33-34; all of 4-10, 15-20, 29-30, 32 T. 18 N., R. 17E.W.M. Portions of Sections 2-3, 11-14, 16, 21-22, 24-25, 27, 34-35; all of Sections 1, 10, 12, 23, 26, 36 T. 18 N., R. 18E.W.M. Portions of Sections 1, 30-32; all of Sections 2-29, 33-36 T. 18 N., R. 19E.W.M. Portions of Sections 2, 3, 5-6, 8-11, 13-14; all of Sections 7, 15-36 T. 18 N., R. 20E.W.M. Portions of Sections 17-18, 20, 28, 33-34; all of Sections 19, 29-32 T. 19 N., R. 17E.W.M. Portions of Sections 15-16, 21-23, 25-28, 33-34; all of Sections 35-36 T. 19 N., R. 18E.W.M. Portions of Sections 26-30, 35-36; all of Sections 31-34 **ALL** IN KITTITAS COUNTY, WASHINGTON. (Continued)

County	Water body		Tributary To	WRIA	
Kittitas	Groundwater, specific source not identified.			39-Upper Yakima	
Purpose	**Rate**	**Unit**	**Ac-Ft/Yr**	**Begin Season**	**End Season**
Domestic Multiple	3,500	GPM	.084 per ERU	01/01	12/31
Source Location:					
Up to 1,200 groundwater wells within the place of use requested above.					

GPM=Gallons Per Minute; ERU=Equivalent Residential Unit; Ac-Ft/Yr = Acre-Feet per Year; Sec. = Section; Twp=Township; Rng=Range; QQ Q = Quarter-Quarter of a section; E.W.M. = East of the Willamette Meridian.

Candis Graff, Water Resources permit writer, asked the applicant to clarify and amend the application, specifically related to water use. The applicant responded by email on November 27, 2013 to correct the daily water use from 250 gallons per minute (gpm) to 250 gallons per day (gpd). The applicant also indicated 100.8 ac-ft of consumptive use (CU) was committed to this application, and if 250 gpd is used, it results in a total use of 336 acre-feet/year (ac-ft/yr) and 1,200 equivalent residential units (ERUs) served at 0.084 ac-ft/yr CU per ERU. These amended parameters are in Table 2.

Table 2: Summary of "Amendments" to Water Right.

Date of Amendment	November 27, 2013
Amended Instantaneous Rate	10 gpm per ERU (total of 12,000 gpm)
Amended Annual Water Duty	336 ac-ft/yr total use, .084 CU X 1,200 ERUs or 100.8 CU total

The Department of Ecology (Ecology) also administratively divided the application into four portions, east and west of the Yakima River, and to reflect the two groundwater bodies and their relationship to the mitigation offered by the applicant:

- More than one body of public groundwater underlay the place of use as described on the application. RCW 90.44.100(2) is premised on a groundwater regulation scheme that begins with identification of a body of public groundwater. In the context of the both proposed application and the trust water right that would serve as the Total Water Supply Available (TWSA) offset to be water budget neutral, Ecology determined it is appropriate to consider division of the application into four parts generally described as follows:
    - Portion (A) represents the sedimentary aquifer system composed of alluvial sediments, Thorp gravels, and the Ellensburg Formation lying southwesterly of the Yakima River generally between Taneum Creek and Manastash Creek.
    - Portion (B) could represent the Columbia River Basalts (CRB) and associated sedimentary interbeds, more commonly known as the Columbia River Basalt Group, or CRBG.
    - Portion (C) represents the sedimentary aquifer system composed of alluvial sediments, Thorp gravels, and the Ellensburg Formation lying north and east of the Yakima River.
    - Portion (D) represents the Columbia River Basalts (CRB) and associated sedimentary interbeds, more commonly known as the Columbia River Basalt Group, or CRBG, lying north and east of the Yakima River.

Table 3 summarizes the changes pertaining to the (A) and (B) portions of the application.

Table 3: Summary of Revised Groundwater Application Nos. G4-35643(A) and G4-35643(B).

Amended Place-of-Use	T. 17 N., R. 17 E.W.M. Portions of Sections 1 and 2. T. 18 N., R. 17 E.W.M. Portions of Sections 13, 22-24, 27, 34-36; all of Sections 25-26. T. 18 N., R. 18 E.W.M. Portions of Sections 18-19, 29, and 31; all of Section 30
Amended Points-of-Withdrawal	T. 17 N., R. 17 E.W.M. Portions of Sections 1 and 2. T. 18 N., R. 17 E.W.M. Portions of Sections 13, 22-24, 27, 34-36; all of Sections 25-26. T. 18 N., R. 18 E.W.M. Portions of Sections 18-19, 29, and 31; all of Section 30
Amended # ERUs (Connections)	350
Amended Annual Quantity (Qa)	29.42 ac-ft/yr (250 gpd)

Place of Use Modifications

The modified place-of-use (POU) and points-of-withdrawal (POWs) lie entirely within the Thorp Subbasin (Subbasin 8), between the Manastash Creek Subbasin (to the south), and the Taneum Creek Subbasin (to the north). The Yakima River forms the east boundary and the Kittitas Reclamation District (KRD) South Branch Canal forms much of the west boundary. Sections 4 and 9, T. 18 N., R. 17E.W.M. were not included in the application and Public Notice. Attachment 1 shows the POU.

The modified POU and POW offers several advantages over the original application request.

- The POU is within a single Subbasin (8), allowing for a focused evaluation of potential impacts to adjudicated surface water rights on specific tributary streams. Mitigation can also be achieved for potential impairment of senior water rights on the major tributary, Robinson Canyon.
- The POU is not a complex hydrogeologic setting, and allows for clear characterization of specific bodies of groundwater.
- The POU does not include any tributary streams with ESA-listed fish species.

Project Boundary Delineation

The project area boundary is described as follows:

Commencing at the shared corner of the basin boundaries of Subbasin 7-Reecer Creek, Subbasin 8-Thorp and Subbasin 11-Manastash Creek in the SE¼ of Section 29, T. 18 N., R. 18 E.W.M., thence following the shared boundary of Subbasins 7 and 8 in a generally northwesterly direction to a point located approximately 225 feet north and 480 feet east of the west quarter corner of Section 18, T. 18 N., R. 18 E.W.M. Thence in a straight, southwesterly direction to a point on the Kittitas Reclamation District (KRD) South Branch Canal (SBC) located approximately 2,245 feet east and 640 feet south of the northwest corner of Section 27 within the NE¼NW ¼ of Section 27, T. 18 N., R. 17 E.W.M. Thence following along the South Branch Canal to turnout 12.8; thence following SBC 12.8 to the approximate middle of Section 1, T. 17 N., R. 17 E.W.M. where it intersects the boundary line between Subbasins 8 and 11; thence following same boundary line in a northeasterly direction to the point of beginning.

Legal Requirements for Approval of Appropriation of Water

RCW 90.44.060 addresses laws governing withdrawals of public groundwater. RCW 90.42.100(2) allows Ecology to use water banking to mitigate for new uses and issue new water rights. Chapters 90.03 and 90.44 RCW authorize the appropriation of public water for beneficial use and prescribe the process for obtaining water rights. Laws governing the water right permitting process are contained in RCW 90.03.250 through 90.03.340 and RCW 90.44.050.

Public Notice

RCW 90.03.280 requires that notice of a water right application be published once a week, for two consecutive weeks, in a newspaper of general circulation in the county or counties where the water is to be stored, diverted, and used. Notice of this application was published in The Daily Record (Ellensburg) on December 5 and 12, 2013. Ecology received 6 protests.

Consideration of Protests and Comments

Ecology received six protest letters and one letter of concern. Each letter is addressed below:

Protest Letters:

Date received: December 17, 2013
Name of protestor: Cindy McMeans
Address of protestor: 820 Colockum Road, Ellensburg, WA 98926
Issue(s): Ms. McMeans objects to the application, stating that her property, located in Section 17, T. 18 N., R. 20 E.W.M., was included as part of the "POU" in the application without her authority.
Ecology's analysis: Ms. McMeans' protest is addressed in the "Place of Use" section on page 2 of this Report of Examination (ROE) and in the "Recommendations" section on page 16. The POU has been reduced to exclude Ms. McMeans' property.

Date received: December 20, 2013
Name of protestors: James D. and Rita Bergevin
Address of protestors: 281 Colockum Road, Ellensburg, WA 98926
Issue(s): The Bergevins object to the approval of the application, stating that their property, located within Section 18, T. 18 N., R. 20 E.W.M., was included in the proposed POU without their permission.
Ecology's analysis: The Burgevin's protest is addressed in the "Place of Use" section on page 2 of this ROE and in the "Recommendations" section on page 16. The POU has been reduced to exclude the Burgevin's property.

Date received: December 23, 2013
Name of protestors: Pat and Mary Burke
Address of protestors: 1351 Smithson Road, Ellensburg, WA 98926
Issue(s): The Burke's protest the application stating:

- No person has permission to appropriate anything from their property, located within Section 25, T. 19 N., R. 17 and Sections 30 and 31, T. 19 N., R. 18 E.W.M. They own several groundwater claims and do not give the applicant permission to include their property in this permit request.
- The application requests in-house domestic use, stating that anyone interested in irrigation must fall within an existing irrigation district's boundaries and request inclusion from that water right.
- Mrs. Burke questions why irrigation and stockwater are not purposes of use and included in the proposal because she believes rural landowners in the area will use water for both purposes.

- Mrs. Burke questions Ecology's exclusion of proper signatures on the application.

Ecology's analysis:

- Issue #1 is addressed in the POU section on page 2 of this ROE and in the "Recommendations" section on page 16. The Burke's property is excluded from the POU authorized in this ROE.
- The application requests in-house domestic use, stating that anyone interested in irrigation must fall within an existing irrigation district's boundaries and request inclusion from that water right. Seeking use for stockwater is, therefore, a non-issue.
- The lack of signatures on the original application will be addressed administratively as requests for assignment are submitted to Ecology.

Date received: January 6, 2014
Name of protestors: Larry Martin of Halverson Northwest Law Group, representative for Steven and Christine Rosbach
Address of representative: 405 E. Lincoln Avenue, Yakima, WA 98907
Issue(s): Mr. Martin states:

- "Without proper limitations or controls on new wells, the Rosbach's ability to divert water from their authorized points of diversion on Cooke Creek, Caribou Creek, and Spring Creek will be interfered with or impaired."
- It is not clear whether groundwater withdrawals from 1,000+ new wells, many which may be located in proximity to the Rosbach's diversions, can occur without directly affecting stream flows and diversionary water available from those surrounding creeks.
- The USBR Storage Contract should be assigned for out-of-season (October 16-March 31) use of water to ensure no negative effects of Total Water Supply Available will occur.

Ecology's analysis:

- Issues #1 and #2 are addressed in the "POU" section on page 2 of this ROE and in the "Recommendations" section on page 16. The Rosbach's property, as well as Cooke, Caribou, and Spring Creeks are excluded from the POU authorized in this ROE.
- Ecology has assigned use of the Storage Contract to this application between October 16 and October 31 annually because the S.C. Aggregate parent fallowed irrigation water right's season of use ends on October 15th, which is not common for most of the Yakima basin irrigation rights where seasons of use normally run through October 31. Some years the USBR has to release storage water to maintain the Parker/Prosser target flows from October 16-31. October 16-31 is often a low-flow period for the Yakima River reach from Roza Dam downstream to the confluence of the Naches River, and Ecology needs to protect that reach against further diminishment of flows during that October 16-31 period. So, to ensure flow reductions in the Yakima River at the Parker/Prosser gaging stations (or in the Yakima River flow-challenged reach below Roza Dam) and also to guarantee no effect whatsoever upon the Cascade Irrigation District, Ellensburg Water Company, and Westside Irrigation Company diversions, the Storage Contract will be required between October 16 and October 31. There is no need to use the Storage Contract to mitigate for flow impacts, or to ensure no negative effect to TWSA from November 1 through March 31 because the water use authorized by this permit will not affect any instream target flows on the Yakima River that are in place from November 1 to March 31 and will not impair any Yakima River water right during that timeframe.[2]

[2] Isley, Stan via email January 28, 2014 and March 25, 2014.

Date received: January 9, 2014
Names of protestors: Chris and Sharon Long
Address of protestors: 1071 Colockum Road, Ellensburg, WA 98926
Issue(s): The Long's protest the application stating:

- "We are assuming this is taking water from our well for S.C. Aggregate Company to develop in other areas."
- They object to more development in the neighboring area.
- They believe their water rights ". . . would be hindered because our water would be allocated to S.C. Aggregate Company for their profits."
- They object to any depletion of their water availability.

Ecology's analysis:

- Issues #1 and #3 are addressed in the "POU" section on page 2 of this ROE and in the "Recommendations" section on page 16. The Long's property is excluded from the POU authorized in this ROE.
- More development belongs to the jurisdiction of Kittitas County and the right to develop is approved through the County.
- Water will remain available for the Long's due to the water-budget-neutral nature of the permit and due to the Reecer Creek Water Bank mitigation for this approval.

Date received: January 13, 2014
Name of protestors: Larry Martin of Halverson Northwest Law Group, representative for Paul and Virginia Sorenson
Address of representative: 405 E. Lincoln Avenue, Yakima, WA 98907
Issue(s): Mr. Martin states:

- "Without proper limitations or controls on new wells, the Sorenson's ability to divert water from their authorized points of diversion on Parke Creek, Cooke Creek, and Caribou Creek will be interfered with or impaired.
- It is not clear whether groundwater withdrawals from 1,000+ new wells, many which may be located in proximity to the Sorenson's diversions, can occur without directly affecting stream flows and diversionary water available from those surrounding creeks.
- The USBR Storage Contract should be assigned for out-of-season (October 16 – March 31) use of water to ensure no negative effects of Total Water Supply Available will occur.

Ecology's analysis:

- Issues #1 and #2 are addressed in the "POU" section on page 2 of this ROE and in the "Recommendations" section on page 16. The Sorenson's property, as well as Cooke, Caribou, and Spring Creeks are excluded from the POU authorized in this ROE.
- Ecology has assigned use of the Storage Contract to this application between October 16 and October 31 annually because the S.C. Aggregate parent fallowed irrigation water right's season-of-use ends on October 15th, which is not common for most of the Yakima basin irrigation rights where seasons of use normally run through October 31. Some years the USBR has to release storage water to maintain the Parker/Prosser target flows from October 16-31. October 16-31 is often a low-flow period for the Yakima River reach from Roza Dam downstream to the confluence of the Naches River, and Ecology needs to protect that reach against further diminishment of flows during that October 16-31 period. So, to ensure flow reductions in the Yakima River at the Parker/Prosser gaging stations (or in the Yakima River flow-challenged reach below Roza Dam) and also to guarantee no effect whatsoever upon the Cascade Irrigation District, Ellensburg Water Company, and Westside Irrigation Company diversions, the Storage Contract will be required between October 16 and October 31. There is no

need to use the Storage Contract to mitigate for flow impacts, or the ensure no negative effect to Total Water Supply Available from Nov 1 through March 31 because the water use authorized by this permit will not affect any instream target flows on the Yakima River that are in place from November 1 to March 31 and will not impair any Yakima River water right during that timeframe.[3]

Comment Letter:

Date received: March 13, 2014
Name of protestors: Larry Martin of Halverson Northwest Law Group, representative for Ellensburg Water Company (EWC)
Address of representative: 405 E. Lincoln Avenue, Yakima, WA 98907
Issue(s): Mr. Martin states:

- Should any proposed wells be drilled in continuity with and up-gradient from the Town Ditch diversion, EWC would then protest this application EXCEPT where independent and verifiable mitigation to address the Yakima River flow deficit above Town Ditch could be provided.
- It is unclear whether new groundwater appropriations can be withdrawn without adverse effect on existing surface water flows and diversionary rights to the streams and ditches that EWC utilizes for capture and distribution of irrigation return flow and runoff.
    - This application is protested without adequate scientific findings concerning the extent of hydrogeologic connectivity between proposed new wells and EWC's diversionary and distribution infrastructure, including both Town Ditch and the network of streams and ditches employed to capture and make use of irrigation return flows and runoff within EWC boundaries.
    - Proper limitations or controls on new wells must be imposed to ensure new wells will not affect the Yakima River and tributary stream flows in a manner that impairs or interferes with EWC's water rights and existing operations.
- The USBR Storage Contract should be assigned for out-of-season use of water to ensure no negative effects of Total Water Supply Available will occur.

Ecology's analysis:

- Ellensburg Water Company's diversionary point was eliminated from the proposed POU and therefore will not be up-gradient from the Town Ditch diversion.
- Any potential impacts to EWC's POD should be avoided due to the adjusted POU.
- Ecology has assigned use of the Storage Contract to this application between October 16 and October 31 annually because the S.C. Aggregate parent fallowed irrigation water right's season of use ends on October 15th, which is not common for most of the Yakima basin irrigation rights where seasons of use normally run through October 31. Some years the United States Bureau of Reclamation has to release storage water to maintain the Parker/Prosser target flows from October 16-31. October 16-31 is often a low-flow period for the Yakima River reach from Roza Dam downstream to the confluence of the Naches River, and Ecology needs to protect that reach against further diminishment of flows during that October 16-31 period. So, to ensure flow reductions in the Yakima River at the Parker/Prosser gaging stations (or in the Yakima River flow-challenged reach below Roza Dam) and also to guarantee no effect whatsoever upon the Cascade Irrigation District, Ellensburg Water Company, and Westside Irrigation Company diversions, the Storage Contract will be required between October 16 and October 31. There is no need to use the Storage Contract to mitigate for flow impacts, or to ensure no negative effect to Total Water Supply Available from November 1 through March 31 because the water use authorized by this permit will not affect any instream target

[3] Isley, Stan via email January 28, 2014 and March 25, 2014.

flows on the Yakima River that are in place from November 1 to March 31 and will not impair any Yakima River water right during that November 1 through March 31 period.[4]

Water Transfer Working Group (WTWG)
Ecology presented the project to the WTWG on February 3, 2014; the WTWG members provided comments and expressed concerns, among these the potential impacts to the Yakima River and tributary streams with ESA-listed fish species. Ecology proposed and, after discussion with the applicant, redefined the POU, POW potential locations, number of connections, and total water demand.

Consultation with the Department of Fish and Wildlife
Ecology provided a generalized draft notice of this water-right application to the Department of Fish and Wildlife (DFW) at a WTWG meeting on February 3, 2014. Ecology presented the project summary and sought comments from the group.

State Environmental Policy Act (SEPA)
A SEPA threshold determination (WAC 197-11) was made based on a SEPA checklist provided by the applicant on February 24, 2014. The checklist addressed the original proposal of up to 1,200 sources and 1,200 residential connections. The application (as originally submitted) is not categorically exempt from SEPA because it exceeds the threshold for groundwater withdrawals (2,250 gpm).

Ecology subsequently assumed lead-agency status and issued a Mitigated Determination of Non-Significance on July 29, 2015.

Investigation

Site Visit

Ecology Water Resources personnel conducted two site visits as part of this investigation. On June 11, 2014, Candis Graff, Stuart Luttrell, Scott Turner, and Jacquelyn Metcalfe conducted a generalized site visit. Special attention was given to local farming practices, crop type, water use, and the presence or absence of livestock.

On June 18, 2015, Tom Perkow, Tyler Roberts, Lindsay Wood, and Keven Samuelson, conducted a follow-up site visit. The primary purpose of this visit was developing greater familiarity with seasonality in the hydrograph and surface water uses of water from Robinson Creek. Observed on this site visit was the relatively high frequency of flood-and-rill irrigation systems, crop types of Timothy hay and alfalfa, and KRD canals and ditches.

Proposed Use and Basis of Water Demand
The applicant intends to make this permit available to mitigate consumptive use for up to 350 new and/or existing groundwater connections. Private landowners and several private and public active water systems lie within the proposed POU (16 in total) which may mitigate water uses with this permit. Specific well locations (POWs) for this permit application cannot be identified at this time.

The POU for these permits is subject to Kittitas County requirements for new groundwater uses, which must be fully mitigated by a pre-May 10, 1905 priority water right. The Reecer Creek Water Bank can provide mitigation for authorized uses, which will be purchased as mitigation credits.

[4] Isley, Stan via email January 28, 2014 and March 25, 2014.

Each of the two water right permits, G4-35643(A) and G4-35643(B), is specific to a public groundwater body ("aquifer"). The applicant and each landowner who obtains mitigation from the applicant will jointly sign and submit an assignment form to Ecology. Ecology will analyze the well construction information and assign the new well/use to one of these permits according to the body of groundwater in which the well is completed and from which it withdraws water.

Water Demand

The estimated total and consumptive use water requirements for the 350 proposed residences within the POU are discussed below (see Table 4):

- Each residence will use an annual average of 250 gpd for domestic supply, year-round (365.25 days; February values are calculated at 28.25 days).
- No irrigation use is requested by this application.
- 30% of the total withdrawal is estimated to be consumed, based on a septic tank drainfield return flow of 70%.
- Total annual demand for 350 connections is 98.08 ac-ft/yr; 29.42 ac-ft/yr of this is CU.

Table 4: Estimated Indoor Total and Consumptive Use

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Total (ac-ft)	8.32	7.59	8.32	8.06	8.32	8.06	8.32	8.32	8.06	8.32	8.06	8.32	98.08
CU (ac-ft)	2.50	2.28	2.50	2.42	2.50	2.42	2.50	2.50	2.42	2.50	2.42	2.50	29.42

Trust Water Right Offered as Mitigation

Ecology and S.C. Aggregate Company, Inc. negotiated an agreement on February 12, 2010 (amended April 2, 2013) to convey and manage the Reecer Creek Golf Course water right within the State Trust Water Right Program. Ecology issued Certificate of Trust Water Right No. S4-01724CTCLsb7 on April 13, 2010 documenting the permanent transfer of 226.27 ac-ft/yr into the Trust Water Right Program.

The trust water is an October 1884 Yakima River mainstem water right, and would provide mitigation to offset the consumptive uses associated with this application. The Storage Contract may be used to offset any adverse flow reductions to the Yakima River from October 16-31. The Storage Contract may also be used between September 1 and October 15 to offset new uses upgradient of the point-of-diversion for senior rights on the Yakima River.

Other Rights Appurtenant to the Place of Use

Ecology staff evaluated existing water rights using the following procedure:

- Performed a water-right-query, defined spatially by the proposed POU, with Ecology's Water Right Tracking System (WRTS), identifying existing POW and POD locations and water use.
- Evaluated adjudicated surface-water rights within the POU by reviewing the Report of Referee (ROR), Supplemental ROR, Memoranda and Orders, and other related documents (The state of Washington, Department of Ecology v. James J. Acquavella, et al., Yakima County Superior Court Cause No. 77-2-01484-5).
- Evaluated groundwater claims in the POU. Groundwater claims with a reported date of first use after June 7, 1945 (the cut-off date specified in RCW 90.14.043 for claims registration) were also included. Final determination of these claims must be through an adjudication process. Ecology assumes water use is occurring under these claims.

- Compiled and tabulated groundwater claims, permits, and certificates; and identified the number, type, and quantity of use.
- Where water rights were not adjudicated the following assumptions were applied, with quantities based on the Report of Referee for Subbasin 8:
    - Domestic use: 2 ac-ft/year
    - Stockwater: 1 ac-ft/year
    - Water duty: 6.6 ac-ft/acre

Surface Water Rights

Most irrigation water within the POU comes from the Yakima River via the Kittitas Reclamation District South Branch Canal and West Side Canal, and Taneum Creek via Taneum Ditch; and is considered foreign return flow. The Court determined no rights could be confirmed to foreign return flows. Surface-water sources include Fogey Creek, Robinson Canyon, Sheep Pasture Creek, Coleman Canyon, Joe Watt Creek, Hatfield Canyon Creek, and unnamed springs and associated ponds and streams.

Approximately sixty-four (64) adjudicated surface-water rights were identified within the POU, which represent 28 Court Claims confirmed by the Acquavella Court. Twenty-eight (28) Yakima River diversions were removed from further evaluation in order to list water use from sources only within Subbasin 8. The total quantity of all Subbasin 8 surface-water rights is approximately 6,337.6 ac-ft/yr. The total irrigated area associated with these rights is approximately 1,592 acres. The Court documents for Subbasin 8 provide descriptions of these water rights. Robinson Canyon is the largest source with approximately 3,152 ac-ft/yr. Water rights validated in the Conditional Final Order are provided in Attachment 2 (not including Yakima River diversions). Table 4 summarizes the identified sources and quantity of water from each source for adjudicated rights within Subbasin 8.

The period of use for claims (other than year-round domestic and stock) begins as early as March 15 and extends to October 31, but surface runoff in streams providing for these diversions generally occurs in early spring, decreasing quickly in early summer. Streamflow may then increase later in the summer as a result of return flow. For example, testimony provided to the Court states in regards to Robinson Canyon, "...creek flow was lowest in the spring before return flow and seepage from up-drainage canals contribute to the creek and that the flow increased until early fall, when it began to decline. Except during the spring, the flows in Fogey Creek and Robinson Canyon are primarily return flow."

The Supplemental ROR states that Taneum Canal carried water (from the Taneum Creek Subbasin) into the POU for stock watering during winter months, and conveyance water (was) a significant portion of the water diverted. Taneum Canal ends at Robinson Canyon, and late-season flows in Robinson Canyon and water in several drains was likely return flows from Taneum Canal. However, diversions for winter stock of approximately 28.8 cfs were eliminated when CS4-00411CTCL@2 authorized up to 63 wells within the Taneum Canal Company service area to provide for these uses. Effects of this change have not been noted in Robinson Canyon streamflows.

Claims submitted and evaluated by the Court included several "drains" for which the source was identified as groundwater but, as reported in one case, "the claims should have been filed as surface water sources." The Court denied several of these because testimony indicated they capture irrigation return flows derived from sources outside Subbasin 8. Only the capture and reuse of local return flow water can be the basis for confirmation of a water right (Page 32, supplemental ROR).

The revised POU for the permit includes some areas situated above the point of diversion for the Cascade Irrigation District, Ellensburg Water Company, and Westside Irrigating Company.

The author found no documented calls for water in the Thorp Subbasin records.

Table 4. Water quantities from adjudicated surface-water claims within Subbasin 8.

Source(s)	Quantity (acre-ft/year)	Number of Claims
Total Surface-water	6,189	38
Coleman Canyon Creek	30	1
Fogey Creek	959	4
Robinson Canyon	3,152	13
Sheep Pasture Creek	100	1
Hatfield Canyon Creek	1,168	3
Unnamed springs	449	16

Groundwater Rights

The POU includes approximately 209 groundwater claims, including approximately 90 long-form claims and 119 short-form claims. The long-form claims include wells for domestic, livestock, and/or irrigation use. The Court addressed the use of several groundwater claims. Several of these claims (Packwood) were removed from the list because they overlap water claimed by individual land owners (Supplemental Report of Referee Pages 59-61). Several claims (Harrell) were removed because testimony provided in the ROR stated these drains convey foreign return flow from Taneum Ditch and KRD.

Short-form claims are limited to domestic use, irrigation of no more than ½ acre, and use of no more than 5,000 gpd for commercial, livestock, or industrial use. Domestic wells have also been installed (since the claims registration) under the permit exemption in RCW 90.44.050. The Ecology wells database indicates more than 150 domestic use wells have been installed since the late 1980s; generally, wells installed between 1974 and the late 1980s are not in the database. More than 400 domestic wells are estimated to be in use within the POU, the largest number in Section 11 in and near the town of Thorp. Groundwater use from all domestic wells may withdraw up to 800 ac-ft/yr, based on the ROR assumptions of 2 ac-ft/yr for each domestic use (for surface water).

The total groundwater use based on groundwater long-form claims is approximately 7,081 ac-ft/yr, with an irrigated area of approximately 1,524 acres. The primary use is irrigation, but may also include livestock and/or domestic uses. Approximately 24 long-form claims are identified as drain wells with a groundwater source, and take approximately 6,769 ac-ft/yr. It is uncertain in many cases whether the source of these is groundwater or return flows, but we assume the source is groundwater unless it was specifically addressed and denied by the Court.

Sixteen (16) active private/public water systems are appurtenant to the lands within the POU. Three groundwater certificates and one permit have been authorized. Certificates G4-28644C and G4-29128C were issued for the community of Thorp [Kittitas County Water District 4, a Group A system (42447D)] in November, 1987 for a combined rate of 350 gpm and a combined annual quantity of 37 acre-feet for the system. The well is 720 feet below ground surface (bgs) and cased to 453 feet bgs; it is open hole below the casing depth to materials including sand and gravel, sandstone, and basalt. The well had an artesian pressure of approximately 6 psi on August 25, 1986. The well has a reported capacity of 400 gpm.

Ten pending applications were previously submitted but have not been processed by Ecology; these will be voluntarily withdrawn upon the approval of this permit.

Hydrologic/Hydrogeologic Discussion and Evaluation

Department of Ecology's licensed hydrogeologist, Kurt Walker, authored the Technical Memorandum dated May 7, 2015, which seeks to address by way of discussion, analysis, and evaluation, the physical water availability and the potential for impairment to existing water users. The entire report may be reviewed upon request. The following includes selected excerpts from the sections of that report identified by headings shown.

Executive Summary

Water is expected to be physically available from the sediment and basalt aquifers in Yakima River Adjudication Subbasin No. 8 - Thorp to support permit applications G4-35643(A) and G4-35643(B). The Kittitas Valley is a large structurally deformed basalt basin which has accumulated substantial amounts of sedimentary material. Both the underlying basalt and basin-fill sediments receive and deliver water through an intricate groundwater-surface water system. Groundwater generally migrates from upland recharge areas towards the center of the Kittitas Valley where it discharges to pumping wells and surface waters as baseflow.

Ecology, through negotiations with the applicant, has developed strategies to address local impairment potential to Robinson Creek water users. With flow impacts to Robinson Creek effectively mitigated with a local mitigation agreement, water use under G4-35643(A) and G4-35643(B) is unlikely to result in adverse impacts to any surface or groundwater users within the area evaluated. This agreement has been prepared outside of this ROE.

The proposed POU lies within Subbasin 8 and generally consists of lands along the valley floor below the elevation of the KRD canal. The POU covers an area roughly 11,000 acres in size. There are approximately 200 groundwater rights and claims distributed throughout the POU. The largest groundwater use within the POU is drawn by Kittitas County Water District 4 to serve the greater Thorp area. However, the majority of water use is managed by major surface water users including: Kittitas Reclamation District, West Side Canal Irrigation Company, Taneum Canal Company, Manastash Creek water users, and the Ellensburg Power Canal/Packwood Canal (Packwood Canal). Except for the Packwood Canal, the other major surface water users import their water from outside Subbasin 8.

Geology (excerpt)

The Kittitas Valley is a broad elliptical shaped basin extending for roughly 25 miles along a northwest – southeast trend. The valley floor sits at an elevation of approximately 1,500 feet above mean sea level (msl). The valley is bound by three anticlinal ridges: Manastash Ridge to the south (approximately 3,200 feet msl), Naneum Ridge to the north (approximately 6,300 feet msl), and Whiskey Dick Anticline to the east (approximately 3,700 feet msl). The Yakima River enters the valley from a narrow constriction near Lookout Mountain where it meanders along a southerly course before leaving the valley through a tight water gap in Manastash Ridge.

Hydrogeology (excerpts)

Two aquifers or groundwater bodies serve the majority of groundwater needs in Subbasin 8. The sediment aquifer and bedrock aquifer are differentiated on the basis of geologic material, hydrogeologic characteristics, flow regime, recharge, and discharge. The sediment aquifer is comprised of a continuous

sequence of unconsolidated sediments and weakly consolidated sedimentary rocks, and the bedrock aquifer consists of Columbia River Basalts (CRBs) and interbeds. The valley fill sediments include the suprabasalt Ellensburg Formation, Thorp Gravel, glacial deposits, and recent alluvial material. Along the margin of the valley floor, and at depth, the CRBs host useable quantities of groundwater. The scope of this report is limited to areas within the proposed POU with a primary focus on the sediment aquifer as well as some description of the bedrock aquifer. [See Figure 1 for general aquifer boundaries and water-level contours.]

Sediment Aquifer

The principal groundwater supply within the study area comes from the sediment aquifer. It is aerially extensive and geologically diverse. The aquifer extends across nearly the entire study area and is comprised of a complex of geologic material that collectively makes up the sediment body which holds and conducts groundwater. The horizontal and vertical geologic variability results in a heterogeneous aquifer with a diverse set of characteristics. These aquifer characteristics within the sediment aquifer system vary by location, and are primarily controlled by the nature of deposition. Shallow portions of the aquifer are expected to display water table conditions, but with increasing depth there is a greater likelihood of encountering semi-confined to confining conditions. This is particularly true of groundwater within the Ellensburg Formation.

Collectively, the aquifer composition is strongly heterogeneous, but for Water Resource Program regulatory purposes it is considered to be part of a single large sediment groundwater unit. Along the valley margins where overburden is thin, groundwater within the Ellensburg Formation may be unconfined to semi-confined. However, towards the center of the valley confined conditions prevail. While the hydraulic properties are not well defined spatially, aquifer test data associated with the City of Ellensburg municipal wells (Petre, 2009) and recent work by the US Geologic Survey (Ely and others, 2011) suggest that the lateral hydraulic conductivity (K) of the Ellensburg Formation is roughly 10 feet/day. Lying unconformably above the Ellensburg Formation, Thorp Gravel deposits can also host useable quantities of groundwater.

Bedrock Aquifer

The other, and less utilized, source of groundwater supply in the study area comes from the CRB Group lava flows and interbeds. This report will focus on the area near Robinson Creek where bedrock wells may be constructed. Of the 3 major CRB formations commonly found in the Yakima River Basin (Grande Ronde Basalt, Wanapum Basalt, and Saddle Mountains Basalt), only the Grande Ronde extends into the POU. The other basalt formations terminate or pinch out before reaching the western portions of the Kittitas Basin.

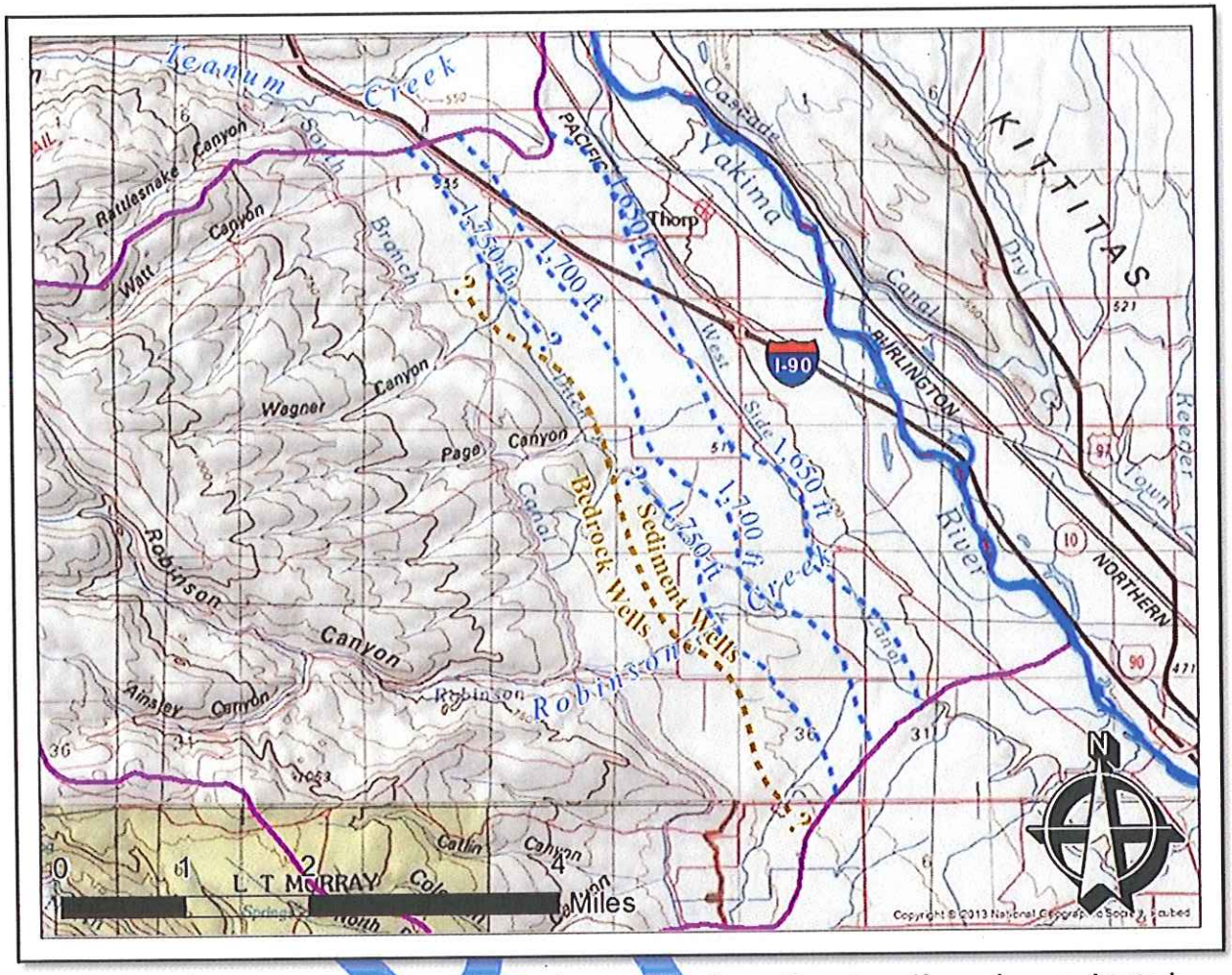

Figure 1. Generalized static water level contours in the sediment aquifer and approximated sediment - bedrock well boundary (Figure 5 in Hydrogeology Report, 2015, Kurt Walker, LHG).

Although direct aquifer test data from the Kittitas Basin area is lacking, data taken from other Grande Ronde Basalt wells located elsewhere in the Columbia Basin have been used to approximate the K value from about 10^{-5} to 10^{2} (Vaccaro and others, 2009). More specifically, K within the flow interiors is expected to be about 10^{-5} to 10^{-3} ft/day, and the interflow zones will exhibit a higher K in the range of 10^{1} to 10^{2} ft/day.

Groundwater Flow System: Recharge, Discharge, Flow Behavior, and Fate of Groundwater

Given the large study area and heterogeneous characteristics of the aquifers, local variability of groundwater movement is difficult to fully ascertain and is beyond the scope of this report. Groundwater generally moves from topographic highs towards the center of the Kittitas Valley. Recharge occurs primarily by way of direct precipitation, stream flow losses, irrigation past the root zone, as well as ditch and canal leakage. Groundwater is discharged to the Yakima River, tributary streams, springs, and pumping wells.

As streams run from the hills en route for the Yakima River some water leaks through the stream bed. These stream losses, predominantly around the perimeter of the valley floor, become groundwater recharge to the sediment aquifer and porous basalt zones. Downstream, the stream-to-groundwater relationship is often reversed as higher groundwater elevations promote discharge from the sediment aquifer to local streams. Upward vertical movement of groundwater is greatest along the axial trace of the main valley. In these

areas, artesian flowing wells are not uncommon, and upward driving groundwater will enter streambeds where porosities allow. Streamflows are also supported by the large scale introduction of irrigation water.

Land use across the valley and in Subbasin 8 is primarily composed of intensely irrigated agriculture. Mean annual recharge has increased significantly as a direct result of on-farm irrigation as well as canal and lateral leakage. For instance, mean annual recharge has increased from less than 3 inches pre-development to greater than 20 inches today in the Ellensburg area. While difficult to quantify, groundwater water levels are likely many feet higher within the POU as a result of agricultural activity. Ultimately, the canal leakage and excess irrigation past the root zone has added to the local groundwater storage and baseflows which support and maintain streamflows beyond predevelopment levels (Vaccaro, 2007).

Potential for Well-to-Well Interference

When multiple groundwater wells pump from the same aquifer, there is potential for individual cones of depression to converge and create a composite cone of depression. When this occurs, collective drawdown in the aquifer may be problematic for pumping wells in the affected area. While specific wells are currently not being proposed under this application, some attempt was made to assess the potential for well-to-well interference.

The Theis equation was used to estimate potential drawdown in the sediment aquifer. Tables 5 and 6 provide a conservative set of aquifer assumptions and theoretical results from pumping.

Table 5: Evaluated Aquifer Properties

Conductivity (K)	Saturated Thickness (ft)	Storativity	[a] Pumping Rate
10 ft/day	175	0.15	43.4 gpm

[a] Pumping Rate: continuous pumping at 43.4 gpm equates to 70.01 afy.

Table 6: Drawdown at Distance from Pumping Well

Distance from Well (ft)	100	500	1,000
Drawdown (ft)	2.6	1.4	0.9

For purposes of this analysis, pumping under this project was assumed from one well at a constant rate. This approach provides a maximum long term average of potential drawdown. In reality, the project will likely consist of multiple wells that pump at a range of rates to meet variable demand. Therefore, actual reduction of the static water level will vary, but is generally expected to be less than the values provided in Table 6.

Physical Availability and Risk of Impairment

Water is physically available from the sediment aquifer within most of the POU. However, along the margin of the valley, where the sediments are thin, it will be unlikely to construct a well that is completed into the sediment aquifer (see Figure 1). In these areas, groundwater will need to be sourced from a basalt aquifer.

Considering the sediment aquifer characteristics, relatively large available saturated thickness in most areas, and favorable range of K, the proposed use (indoor domestic) is not expected to result in severe impacts to existing groundwater users. Similarly, withdrawals from the basalt aquifer in the Robinson Creek area would not likely result in severe impacts to existing groundwater users.

Quantitative analysis of stream flow impact is outside the scope of this report given that well locations and pumping rates remain uncertain. Qualitative description of potential impacts to surface water features in Subbasin 8 is also challenging given the large geographic area and limited onsite physical data. Additionally, it is unclear to what degree surface water users, or groundwater users for that matter, benefit and rely on

imported waters or foreign return flows. That being said, what is certain is that pumping wells will capture groundwater water before it discharges to surface water features. Generally speaking, pumping from wells completed in close proximity to streams and springs is likely to have a local flow reduction effect. In contrast, pumping from wells located in lower elevation areas and down gradient from local surface water features may only result in flow impacts to the Yakima River.

Water Availability

For water to be available for appropriation, it must be both physically and legally available. Results of the hydrogeology report, portions of which are provided above, were used to provide the basis for the evaluation of water availability.

Physical Availability

For water to be physically available for appropriation there must be ground or surface water present in quantities and quality and on a sufficiently frequent basis to provide a reasonably reliable source for the requested beneficial use or uses. Additionally, the following factors are considered:

- Volume of water represented by senior water rights.
- Water right claims registered under Chapter 90.14 RCW.
- Ground water uses established in accordance with Chapter 90.44 RCW.
- Potential riparian water rights, including non-diversionary stock water.

Existing appropriations for water within the POU were discussed earlier, and are summarized below.

Table 7. Existing appropriations for water in the POU for Permit G4-35643(A) and G4-35643(B).

Type of Appropriation	Number of Rights	Qa (ac-ft/yr)	Comments
Surface water, adjudicated	38	6,189	
Groundwater long-form claims	84	7,081	Drains comprise 6,769 ac-ft of the total
Groundwater certificates	3	39	
Groundwater permits	1	0.4	
Domestic uses	400	800	Range-of-magnitude estimate
TOTAL APPROPRIATED WATER		14,109	

As stated earlier, mean annual recharge has increased significantly as a result of on-farm irrigation and canal and lateral leakage. Local groundwater levels, storage and baseflows have also increased with these practices, resulting in a net gain of water in the discharge area of Thorp Subbasin 8.

The requested authorization of 98.08 ac-ft/year will make up a small fraction (approximately 0.7%) of the combined total annual quantity of appropriated water. The consumptive use of 29.4 ac-ft/year is mitigated with water from the Reecer Creek Trust Water Right. The water use is therefore water-budget neutral with respect to Total Water Supply Available.

Water is physically available from the sediment aquifer within most of the POU. However, along the margin of the valley, where the sediments are thin, it will be unlikely to construct a well that is completed into the sediment aquifer. In these areas, groundwater will need to be sourced from the bedrock aquifer. These uses will be assigned to Permit G4-35643(B).

Legal Availability

To determine whether water is legally available for appropriation, the following factors are also considered:

- Regional water management plans – which may specifically close certain water bodies to further appropriation.
- Existing rights – which may already appropriate physically available water.
- Fisheries and other instream uses (e.g., recreation and navigation).

The Kittitas Valley, including the POU, is not within a closed basin.

The existing total appropriations do not take all physically available water and users are apparently able to effectively divert and use all water allocated, evidenced by no documented calls for water in the Thorp Subbasin records.

The consumptive use withdrawn under this permit will be mitigated for TWSA with a Trust Water Right, and seasonal impacts to a portion of the Yakima River will be offset by use of the Storage Contract.

Total Water Supply Available

Total Water Supply Availability (TWSA) comprises all of the natural flow and stored water estimated to be available to meet the needs of the Yakima Irrigation Project and the water users holding rights senior to it. The measuring point of TWSA is at Parker, Washington, which is located downstream of Union Gap, Washington.

USBR maintains instream target flows in the lower Yakima River at the Parker and Prosser stream flow gages from April 1 through October 31 each year. Reclamation does not maintain any non-irrigation season (i.e., from November 1 through March 31 of the following year) instream target flows below the confluence of the Teanaway River with the Yakima River, a point which is located approximately 15 river-miles upstream of the west-most and nearest portion of the proposed POU for this permit.

Water Budget Neutrality Within the Yakima Basin TWSA[5]

Water uses that would be authorized by this permit would have their consumptive use offset by the S.C. Aggregate Water Bank trust water right—a Yakima River irrigation water right historically diverted westerly of Ellensburg, Washington.

USBR and Ecology have entered into a water storage contract, or Water Exchange Contract, which allows Ecology to utilize storage space in the Federal Yakima Project water storage reservoirs, when available, to store up to 1,000 acre-feet of state trust water for re-timing and later release for mitigation or other purposes during the non-irrigation season or when needed.

The season of use for the former irrigation water right purchased by S.C. Aggregate was April 1 through October 15, thus providing in-time mitigation from April 1 through October 15 each year for all of the uses proposed by this permit. To ensure no negative impact to TWSA, Ecology intends to assign 1.29 acre-feet (the consumptive use for 350 houses for sixteen (16) days) of Certificate of Trust Water Right No. S4-01724CTCLsb7 to the USBR-Ecology Water Exchange Contract. This would ensure target flows at the

[5] Isley, Stan via email January 28, 2014 and March 25, 2014.

Parker and Prosser gages would be met and no reduction in flows along the mainstem Yakima River below Thorp during the October 16 through October 31 period would result from withdrawals of groundwater under this application.

During the non-irrigation season (November 1 to March 31), USBR does not release water from storage to maintain target flows in the reaches of the Yakima River below the Teanaway River.

The State of Washington Department of Ecology and the USBR entered into a Water Storage and Exchange Contract, No. 09XX101700, dated January 29, 2009. The Storage Contract allows Ecology to store up to 1,000 acre-feet of state trust water in the Federal Yakima Project storage reservoirs for re-timing and later release for mitigation or other purposes during the non-irrigation season or when needed. The USBR will manage the water to meet all instream flow targets on the reach of the Yakima River adjacent to the POU.

Impairment Considerations

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection. A water right application may not be approved if it would:

- Interrupt or interfere with the availability of water to an adequately constructed groundwater withdrawal facility of an existing right. An adequately constructed groundwater withdrawal facility is one that (a) is constructed in compliance with well construction requirements and (b) fully penetrates the saturated zone of an aquifer or withdraws water from a reasonable and feasible pumping lift.
- Interrupt or interfere with the availability of water at the authorized point of diversion of a surface water right. A surface water right conditioned with instream flows may be impaired if a proposed use or change would cause the flow of the stream to fall to or below the instream flow more frequently or for a longer duration than was previously the case.
- Interrupt or interfere with the flow of water allocated by rule, water rights, or court decree to instream flows.
- Degrade the water quality of the source to the point that the water is unsuitable for beneficial use by existing users (e.g., via sea water intrusion).

Groundwater Impairment

The well interference caused by groundwater withdrawals under likely conditions will not lead to impairment of a right to withdraw groundwater from a qualifying work. Potential drawdown and well interference in the sediment aquifer was evaluated in the hydrogeology evaluation and reported previously in this document. The predicted drawdown of 2.6 feet is less than 2% of the aquifer thickness of 175 feet. Prediction of pumping from the basalt aquifer would result in a similar magnitude of drawdown because the hydraulic conductivity of the interflow zones is similar to that of the sediment aquifer, although the distance of the effects may be greater due to lower storativity of the basalt aquifer.

Considering the sediment aquifer characteristics, relatively large available saturated thickness in most areas and favorable range of hydraulic conductivity, the proposed use (indoor domestic) is not expected to result in severe impacts to existing groundwater users that would lead to impairment. Similarly, withdrawals from the basalt aquifer in the Robinson Canyon area would not likely result in impacts leading to impairment to existing groundwater users.

Surface-water Impairment

Water uses authorized by this permit are mitigated for TWSA by water in the Trust Water Right Program in the Reecer Creek Water Bank (number S4-01724CTCLsb7), derived from the purchase and permanent

fallowing of an October 1884 Yakima River irrigation water right, with a historical POD located west of Ellensburg, Washington. The season of use for the Reecer Creek water right was April 1 through October 15; therefore, water uses will be fully mitigated during the November 1 through March 31 non-irrigation season. The storage contract may be required to offset impacts from October 16 through October 31. Ecology will assign 0.892 ac-ft/yr from the Reecer Creek Water Bank to the Storage Contract to meet target flows at the Parker stream gage, and to maintain flows elsewhere on the mainstem Yakima River from October 16 through October 31.

The revised POU for the permit includes some areas above the point of diversion for the Cascade Irrigation District, Ellensburg Water Company, and Westside Irrigation Company. New water uses within areas located up-gradient of these diversions may also require use of the Storage Contract from September 1 through October 15 to offset potential impacts to these water rights during that period. Assignment of that water use to the Storage Contract will be determined based on specific locations of the POWs, and is not included in the 0.892 ac-ft/yr identified above.

Several adjudicated surface-water rights take water from Robinson Canyon, Fogey Creek, Hatfield Canyon Creek, and lesser amounts from other small tributary streams and unnamed springs. The Report of Referee and Supplemental Report of Referee, *Aquavella vs. Ecology*, indicate that flows in Fogey Creek and Robinson Canyon are primarily return flow, except during the spring. As stated above in the hydrogeology discussion, it is unclear to what degree surface water users, or groundwater users for that matter, benefit and rely on imported waters or foreign return flows; therefore it is assumed that groundwater at least partially contributes to return flows that contribute to streamflows.

Generally speaking, pumping from wells completed in close proximity to streams and springs may have a local flow reduction effect; this assumes that pumping wells capture groundwater water before discharging to surface water features. If this does occur the stream flow reduction will be insignificant in relation to the total streamflow. For example, the total appropriation of 98 ac-ft/year, as a continuous rate, is equal to approximately 0.1 cfs. Therefore, groundwater withdrawals will not likely lead to impairment of existing rights.

Even so, an agreement has been reached with the holder of water right S4-83956-J to fallow the land associated with that right, and allow water to remain in stream to mitigate for surface-water impacts (in Robinson Canyon) if they should occur. That water right, for 375 ac-ft/yr and 125 ac-ft/yr conveyance loss, is one of the most senior rights on Robinson Canyon, with a priority date of May 4, 1880. Lower Robinson Creek surface-water rights are presented in Attachment 3.

Beneficial Use

The proposed use of water for the purpose of domestic multiple is defined in statute as a beneficial use (RCW 90.54.020(1)).

Public Interest Considerations

When investigating a water right application, Ecology is required to consider whether the proposal is detrimental to the public interest (Chapter 90.54 RCW). In determining whether the proposed use threatens to prove detrimental to the public interest, Ecology may consider, but is not limited to, the following factors:

- Consistency with applicable water resource fundamental principles of RCW 90.54.020.

- Consistency with applicable state, local, or federal natural resource management plans and local comprehensive land-use management plans applicable to the area.
- Effects on navigation, water quality, public health, and safety.
- Protection of upper aquifer zones (WAC 173-154).

Nothing in the proposed use of water is inconsistent with the fundamental principles of water resources outlined in RCW 90.54.020. State, local, and federal natural resource agencies have been consulted regarding the proposed water use and, after multiple rounds of feedback and suggestions, concerns on their behalf have been incorporated into 1) the scope of the project and 2) mitigating the consumptive use component of the requested water. There are no anticipated effects on navigation, water quality, public health or safety that are not consistent with the public interest.

Public interest benefits are also realized through innovative aspects of the project. This permit provides mitigated new uses for up to 1,200 homes through a simplified approval process, making reliable water available to potential homeowners available efficiently. This also concurrently reduces the number of water rights permits processed through the state, freeing resources for work on other agency projects.

Additional public interest considerations were addressed in the Mitigated Determination of Non-Significance document.

Conclusions

- Water is physically and legally available for this appropriation.
- The proposed use is beneficial use of water.
- The proposed use is not contrary to the public interest.
- The proposed use will not cause detriment or injury to existing rights.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that this request for a water right be approved in the amounts and within the limitations listed below and subject to the provisions listed above.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit between Groundwater Application Nos. G4-35643(A) and G4-35643(B) and the water user(s) may only use that amount of water within the specified limit that is reasonable and beneficial.

Limits and Purpose

- 1,120 gallons per minute.
- Total use 98.08 acre-feet per year.
- Consumptive use 29.42 acre-feet per year.
- Approved for continuous (year-round) indoor multiple domestic for up to 350 residences.
- No incidental lawn and/or garden irrigation is authorized under this permit.

Points of Withdrawal

Up to 350 wells within the **alluvial** aquifer [G4-35643(A)], and/or the **bedrock** aquifer [G4-35643(B)], supplying up to 350 residences to be developed within all or most of the sections listed below in the

authorized place of use. The total count of wells shall not exceed 350 between both permits G4-35643(A) and G4-35643(B).

Place of Use

Within the following locations:

T. 17 N., R. 17 E.W.M. Portions of Sections 1 and 2.
T. 18 N., R. 17 E.W.M. Portions of Sections 13, 22-24, 27, 34-36; all of Sections 25-26.
T. 18 N., R. 18 E.W.M. Portions of Sections 18-19, 29, and 31; all of Section 30.

ALL IN KITTITAS COUNTY, WASHINGTON.

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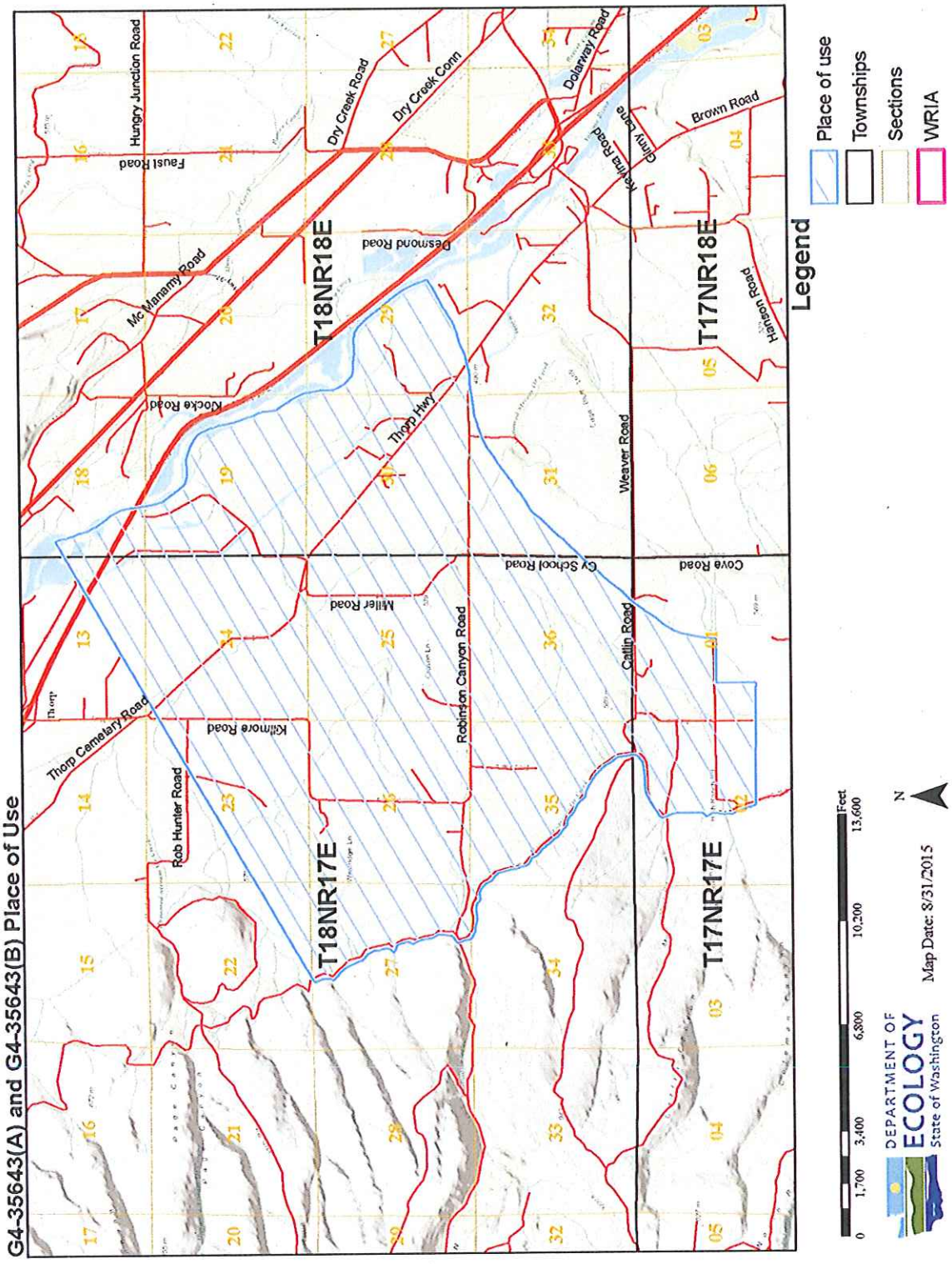
Attachment 1: The Place of Use for Groundwater Application Nos. G4-35643(A) and G4-35643(B).



Attachment 2: adjudicated water right claims within POU

Water Right Control No.	Priority Date	Purpose of Use	Qa (ac-ft)	Acres	Township/ Range/ Section	Quarter-Quarter/Quarter	Source
S4-83987-J	6/30/1890	Irrigation	30	30	17/17/02	NW/SE	COLEMAN CANYON
S4-83954-J	1/30/1889	Stockwater, Irrigation	51	4	18/17/13	SE/SE	FOGEY CREEK
S4-83960-J	6/30/1903	Stockwater, Irrigation	765	60	18/17/13	SE/SE	FOGEY CREEK
S4-83946-J	6/30/1876	Stockwater, Irrigation	280	70	18/17/14	S/SW	FOGEY CREEK
S4-83958-J	6/30/1903	Stockwater, Irrigation	193.8	424	18/17/13	SE/SE	FOGEY CREEK
S4-83992-J	6/30/1882	Stockwater, Irrigation	85	6.25	18/18/30	S/SE	HATFIELD CANYON
S4-83488-J	6/30/1871	Irrigation	50.5	5	18/18/32	NW/NW	HATFIELD CANYON
S4-83569-J	6/30/1885	Irrigation	1032.55	106	18/18/32	NW/NW	HATFIELD CANYON
S4-83977-J	11/14/1883	Irrigation	132	20	18/17/09	N/NW	JOE WATT CREEK
S4-83959-J	6/30/1903	Stockwater, Irrigation	699	373	18/18/19	SE/SW	ROBINSON CANYON
S4-83991-J	9/22/1906	Stockwater, Irrigation	2	0.25	18/17/26	SW/SW	ROBINSON CANYON
S4-83955-J	9/22/1906	Irrigation	140.25	16.5	18/17/26	SW/SW	ROBINSON CANYON
S4-83956-J	5/4/1880	Stockwater, Irrigation	375	150	18/17/27	SW/SE	ROBINSON CANYON
S4-83990-J	4/7/1908	Stockwater, Irrigation	213.5	25	18/17/26	SW/SW	ROBINSON CANYON
S4-83961-J	11/1/1881	Stockwater, Irrigation	70.5	15	18/17/24	SE/SE	ROBINSON CANYON
S4-83962-J	2/1/1882	Stockwater, Irrigation	37.6	8	18/17/24	SE/SE	ROBINSON CANYON
S4-83963-J	6/1/1882	Stockwater, Irrigation	68.6	14.6	18/17/24	SE/SE	ROBINSON CANYON
S4-83964-J	11/1/1881	Stockwater, Irrigation	23.5	5	18/17/24	SE/SE	ROBINSON CANYON
S4-83965-J	6/28/1887	Stockwater, Irrigation	153.2	32.6	18/17/24	SE/SE	ROBINSON CANYON
S4-83966-J	6/28/1887	Stockwater, Irrigation	778	61	18/17/24	SE/SE	ROBINSON CANYON
S4-83967-J	1/13/1902	Stockwater, Irrigation	523	41	18/17/24	SE/SE	ROBINSON CANYON
S4-83968-J	6/28/1887	Stockwater, Irrigation	67.7	14.4	18/17/24	SE/SE	ROBINSON CANYON
S4-83982-J	6/9/1887	Irrigation	100	14	18/18/29	NW/SE	SHEEP PASTURE CREEK
S4-83988-J	6/30/1910	Irrigation	13.2	2	18/17/11	NW/SE	TWO UNNAMED SPRINGS

S4-83980-J	1/18/1886	Domestic Multiple, Stockwater, Irrigation	2	0.25	18/17/22	NW/NE	UNNAMED SPRING
S4-83985-J	7/15/1889	Stockwater, Irrigation	11	0.25	18/17/02	SW/SW	UNNAMED SPRING
S4-83986-J	11/4/1895	Stockwater	28	-	18/17/11	NW/NW	UNNAMED SPRING
S4-83984-J	3/9/1889	Irrigation, Domestic Single	2	0.5	18/17/13	SW/NW	UNNAMED SPRING
S4-83981-J	11/4/1886	Stockwater, Irrigation	1	0.5	18/18/30	SW/SE	UNNAMED SPRING
S4-83983-J	6/22/1887	Irrigation	79.2	12	18/17/03	NE/SE	UNNAMED SPRING
S4-83943-J	6/30/1892	Stockwater, Irrigation	1	0.5	18/17/11	NE/SE	UNNAMED SPRING
S4-83970-J	6/30/1878	Stockwater, Irrigation	64.7	9.5	18/17/11	SW/SE	UNNAMED SPRING
S4-83979-J	8/11/1885	Domestic Single	1	-	18/18/30	NW/SW	UNNAMED SPRING
S4-83994-J	1/13/1902	Stockwater, Irrigation	200	60	18/17/24	NE/NE	UNNAMED SPRING
S4-83971-J	6/30/1878	Stockwater, Irrigation	5.3	0.5	18/17/11	SW/SE	UNNAMED SPRING
S4-83948-J	2/28/1897	Stockwater	1	-	18/17/11	NW/SE	UNNAMED SPRING
S4-83945-J	11/04/1895	Irrigation	16.8	4	18/17/09	NE/SE	SPRING-FED POND
S4-84091-J	6/30/1882	Irrigation	5	0.75	18/18/30	SE/SE	SPRING-FED STREAM
S4-83944-J	6/30/1882	Stockwater, Irrigation	14.9	2.5	18/18/30	SE/SE	SPRING-FED STREAM
S4-83993-J	6/30/1910	Irrigation	19.8	3	18/17/11	NW/SE	UNNAMED SPRINGS

Attachment 3: Lower Robinson Creek surface rights within POU

There are nine adjudicated surface water claims on Lower Robinson Canyon Creek, diverting from only two points of diversion on the creek; eight adjudicated claims for Theiline Scheumann authorizing diversion at the point where Robinson Creek intersects Thorp Highway, and a Packwood Canal Company diversion for 699 acre-feet per year. The Scheumann rights have priority dates ranging from June 18, 1877 to January 13, 1902, while the Packwood Canal Co. right is the most junior with a priority date of June 30, 1903.

The nine adjudicated surface water claims authorize an instantaneous diversion (Qi) of 11.5 cfs from March 1 to March 31, 22.8 cfs from April 1 to July 10, and 22.3 cfs from July 10 to October 31. The total annual quantity authorized for diversion is 2,391.1 acre-feet per year, for 564.6 acres of irrigation. Irrigation season on these rights begins March 1st for approximately half of the total Qi for all surface diversions, and 187 acres out of the total 564.6 acres of irrigation authorized by the Court.

Control No.	Priority Date	Claimant	Acres Irrig.	Period	Qi	Qa
S4-83966-J	6/28/1877	Theiline P. Scheumann	61	March 1 - Oct 31	3.42 cfs	778 ac-ft/yr
S4-83965-J	6/28/1887		32.6	March 1 - Oct 31	1.83 cfs	153.2 ac-ft/yr
S4-83968-J	6/28/1887		14.4	March 1 - Oct 31	1.10 cfs	67.7 ac-ft/yr
S4-83964-J	11/1/1881		5	April 1 - Oct 31	0.28 cfs	23.5 ac-ft/yr
S4-83961-J	11/1/1881		15	March 1 - Oct 31	1.15 cfs	70.5 ac-ft/yr
S4-83962-J	2/1/1882		8	March 1 - Oct 31	0.62 cfs	37.6 ac-ft/yr
S4-83963-J	6/1/1882		14.6	March 1 - Oct 31	1.12 cfs	68.6 ac-ft/yr
S4-83967-J	1/13/1902		41	March 1 - Oct 31	2.30 cfs	523 ac-ft/yr
S4-83959-J	6/30/1903	Packwood Canal Company, Inc.	373	April 1 - Oct 31	11 cfs to 7/10, 10.5 cfs to 10/31	669 ac-ft/yr

* All rights listed have Robinson Canyon Creek as the source.

** All rights listed also have stockwater confirmed as a purpose of use.